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EXAMINER	
CHAN, SAI MING	

ART UNIT	PAPER NUMBER
2416	

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/682,536

**Applicant(s)**

CUMMINGS, SCOTT A.

**Examiner**

SAI-MING CHAN

**Art Unit**

2416

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-13,17-26 and 30-36 is/are rejected.
- 7) ☒ Claim(s) 3-5,14-16 and 27-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date 4/20/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statements (IDS) submitted on 4/20/2008 has been considered by the Examiner and made of record in the application file.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 1-2 and 25-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Liva et al. (U.S. Patent Publication #20020136203)**.

Consider **claim 1**, Bunn et al. clearly disclose and show a method for improving channel efficiency in a broadband communication system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard, comprising:

establishing one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)) for communication between a first device (fig. 1 (104 (cmts))); paragraph 65) that supports at least one proprietary communication parameter (paragraph 71) associated with bandwidth utilization (paragraph 22, lines 11-17) and other devices (fig. 1 (108 (cm))); paragraph 70) that support said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor));

receiving registration information (fig. 4 (402); paragraph 90) from a second device, wherein said registration information (paragraph 92) indicates that said second device supports said at least one proprietary communication parameter (fig. 4 (402(extended protocol))); paragraph 92); and

determining if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

if said second device may be assigned to said one of said one or more proprietary

logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)),

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Liva et al. clearly show creating a new proprietary logical channel (paragraph 0066 (other channel supports legacy channel), paragraph 0153 (create a new channel), paragraph 0154 (assign logical channels)) which supports said at least one proprietary communication parameter (paragraph 0096 (each channel is provisioned appropriately for each parameter)).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Liva, so that communication can be conducted efficiently.

Consider **claim 25**, Bunn et al. clearly disclose and show a computer program product (fig. 23; paragraph 290) comprising a computer useable medium having computer program logic (paragraph 294) recorded thereon for enabling a processor (fig. 23 (2303)) to facilitate communication (fig. 23 (2302)) between devices in a broadband communication system () that complies with a Data Over Cable Service Interface

Specification (DOCSIS) standard (paragraph 70), said computer program logic comprising:

means for enabling the processor to establish a channel for communication between a first device (fig. 1 (104 (cmts))); paragraph 65) that implements at least one proprietary communication parameter (paragraph 71 (using proprietary protocols)) associated with bandwidth utilization (paragraph 22, lines 11-17) and other devices (fig. 1 (108 (cm))); paragraph 70) that support said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor));

means for enabling the processor to receive registration information (fig. 4 (402); paragraph 90) from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter (fig. 4 (402( extended protocol))); paragraph 92); and

means for enabling the processor to determine if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

means for enabling the processor to assign said second device to said one of said one or more proprietary logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)).

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Liva et al. clearly show creating a new proprietary logical channel (paragraph 0066 (other channel supports legacy channel)) which supports said at least one proprietary communication parameter (paragraph 0096 (each channel is provisioned appropriately for each parameter)).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Liva, so that communication can be conducted efficiently.

Consider **claim 2**, and **as applied to claim 1 above**,  
**claim 26**, and **as applied to claim 25 above**,

Bunn et al. clearly disclose and show a method, wherein said first device comprises a cable modem termination system (fig. 1 (104 (cmts))); paragraph 65) and said second device comprises a cable modem (fig. 1 (108 (cm))); paragraph 70).

**Claims 6-8 and 30-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Liva et al. (U.S. Patent Publication #20020136203)**, and in view of **Rakib et al. (U.S. Patent Publication # 20050025145)**.

Consider **claim 6**, and **as applied to claim 1 above**,  
**claim 30**, and **as applied to claim 25 above**,

Bunn et al. clearly disclose and show the method as described.

However, Bunn et al. do not specially disclose the UCD messages.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a UCD message, as taught by Rakib, in order to show that the bandwidth efficiency is optimized.

Consider **claim 7**, and **as applied to claim 6 above**,  
**claim 31**, and **as applied to claim 30 above**,

Bunn et al. clearly disclose and show a method, wherein said generating a message having a version field (fig. 9b (918); paragraph 133) or a type field (fig. 9b (922); paragraph 133) that comprises a value not provided for by the DOCSIS standard.

However, Bunn et al. do not specially disclose the generating of a Upstream Channel Descriptor (UCD) message.

In the same field of endeavor, Rakib et al. clearly show the Upstream Channel Descriptor (UCD) message (paragraph 63).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and generate UCD messages, as taught by Rakib, in order to guarantee smooth data transmission.

Consider **claim 8**, and **as applied to claim 1 above**,  
**claim 32**, and **as applied to claim 30 above**,  
Bunn et al. clearly disclose and show the method as described.

However, Bunn et al. do not specially disclose sending the UCD messages to the intended devices.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) only to intended devices (figs. 9a,b &c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., as modified by Cloonan et al., and to send a UCD message to intended

devices, as taught by Rakibet, in order to show that the bandwidth efficiency is optimized.

**Claims 9-10 and 33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Liva et al. (U.S. Patent Publication #20020136203)**, and **Rakib et al. (U.S. Patent Publication # 20050025145)**, and further in view of **Limb et al. (U.S. Patent Publication # 20070076717)**.

Consider **claim 9**, and **as applied to claim 8 above**,  
**claim 33**, and **as applied to claim 32 above**,  
Bunn et al. clearly disclose and show a method, wherein said sending said message only to devices that support said at least one proprietary communication parameter comprises:

accessing a database of identifiers (fig.5 (502-514( cmts uses cm id to access protocol indicator; paragraph 98)) of devices that support said at least one proprietary communication parameter; and

However, Bunn et al. do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a unicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

However, Bunn et al., as modified by Limb, do not specially disclose sending the UCD messages to the intended devices.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) only to intended devices (figs. 9a, b & c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a unicast message, as taught by Limb et al., and send a UCD message, as taught by Rakib et al., in order to ensure smooth data transmission.

Consider **claim 10**, and **as applied to claim 8 above**,  
**claim 34**, and **as applied to claim 32 above**,

Bunn et al. clearly disclose and show a method, wherein said sending said message only to devices that support said at least one proprietary communication parameter comprises:

accessing an identifier (fig.5 (502-514( cmts uses cm id to access protocol indicator;paragraph 98))).

However, Bunn et al. do not specially disclose the sending of a multicast message.

In the same field of endeavor, Limb et al. clearly show the generating a multicast message (paragraph 51).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

However, Bunn et al., as modified by Limb et al., do not specially disclose sending the UCD message.

In the same field of endeavor, Rakib et al. clearly show sending the Upstream Channel Descriptor (UCD) message (paragraph 63) a plurality of devices (figs. 9a,b &c; paragraph 36).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send multicast message, as taught by Limb et al., and to send a UCD message, as taught by Rakib et al., in order to show that the bandwidth efficiency is optimized.

**Claims 11-12 and 35-36** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Liva et al. (U.S. Patent Publication #20020136203)**, and in view of **Limb et al. (U.S. Patent Publication # 20070076717)**.

Consider **claim 11**, and **as applied to claim 1 above**,  
**claim 35**, and **as applied to claim 25 above**,

Bunn et al. clearly disclose and show a method, wherein said receiving said registration information from a second device comprises:

sending a first message (fig. 4 (402); paragraph 298; cmnts sends message to cm for proprietary features capability) to said second device to determine if said second device implements any proprietary features;

receiving a message (fig. 4 (402); paragraph 90) from said second device, wherein said message indicates support by said second device for said at least one proprietary communication parameter; and

sending a second message (fig. 4 (404); paragraph 93) to said second device, wherein said second message indicates support by said first device for said at least one proprietary communication parameter.

However, Bunn et al. do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by

Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

Consider **claim 12**, and **as applied to claim 1 above**,  
**claim 36**, and **as applied to claim 25 above**,

Bunn et al. clearly disclose and show a method as described.

However, Bunn et al. do not specially disclose the sending of a unicast message.

In the same field of endeavor, Limb et al. clearly show the generating a unicast message (paragraph 45).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a channel efficiency method, as taught by Bunn et al., and to send a multicast message, as taught by Limb et al., in order to ensure bandwidth efficiency.

**Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bunn et al. (U.S. Patent Publication # 20070058640)**, in view of **Liva et al. (U.S. Patent Publication #20020136203)**, and further in view of **Cloonan et al. (U.S. Patent Publication # 2004000863)**.

Consider **claim 13**, Bunn et al. clearly disclose and show a cable modem termination system (CMTS) (fig. 5; paragraph 38) for improving channel efficiency in a

cable modem system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard (paragraph 70), comprising:

to establish one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)) for communication between a first device (fig. 1 (104 cmts)); paragraph 65) that supports at least one proprietary communication parameter (paragraph 71); and

a registration module (paragraph 99) adapted to receive registration information from a cable modem, wherein said registration information indicates that said cable modem supports said at least one proprietary communication parameter (paragraph 99 (presence of extended protocol descriptor in the message)).

to determine if said second device may be assigned to one of said one or more proprietary logical channels based on said registration information (fig. 4 (406), paragraph 0094 (transmit data with extended protocol)),

if said second device may be assigned to said one of said one or more proprietary logical channels, assigning said second device to said one of said one or more proprietary logical channels (fig. 4 (408), paragraph 0094 (transmit data with extended protocol)).

However, Bunn et al. do not specially disclose creating a new proprietary logical channel.

In the same field of endeavor, Liva et al. clearly show creating a new proprietary logical channel (paragraph 0066 (other channel supports legacy channel)) which

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supports said at least one proprietary communication parameter (paragraph 0096 (each channel is provisioned appropriately for each parameter)).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., and create logical channels, as taught by Liva, so that communication can be conducted efficiently.

However, Bunn et al. do not specially disclose the upstream channel manager.

In the same field of endeavor, Cloonan et al. clearly show an upstream channel manager (abstract (high level MAP scheduler); fig. 5 (16 (high level MAP scheduler)) paragraph 26, (PHY, for physical channel, can be connected to several logical channels. The low level MAP Scheduler (8) keeps track of which logical channels are tied to which physical channel. The high level MAP scheduler controls the low level MAP scheduler).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a channel efficiency method, as taught by Bunn et al., create logical channels, as taught by Liva, and show the upstream channel manager, as taught by Cloonan, so that the system is managed properly.

Consider **claim 17**, it is being rejected for the same reason as set forth in **claim 1**.

Consider **claim 18**, it is being rejected for the same reason as set forth in **claim 6**.

Consider **claim 19**, it is being rejected for the same reason as set forth in **claim 7**.

Consider **claim 20**, it is being rejected for the same reason as set forth in **claim 8**.

Consider **claim 21**, it is being rejected for the same reason as set forth in **claim 9**.

Consider **claim 22**, it is being rejected for the same reason as set forth in **claim 10**.

Consider **claim 23**, it is being rejected for the same reason as set forth in **claim 1**.

Consider **claim 24**, it is being rejected for the same reason as set forth in **claim 9**.

### ***Allowable Subject Matter***

Claims 3-5, 14-16 and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed on 4/20/2009, with respect to claims 1, 13 and 25, on pages 12-23 of the remarks, have been carefully considered.

The Examiner appreciates the detail explanation in the Applicant's remarks. Although the parameter in Bunn's reference is not alpha parameter or bandwidth parameter, the language of claim 1 does not refer to any bandwidth parameter (or alpha parameter). Therefore the Examiner maintains his rejection. In addition, Liva does create a new channel and assign logical channels (para. 0153 (create a new channel)

and para. 0154 (assign logical channels))). The Examiner has withdrawn the rejections for 3-5, 14-16 and 27-29. They are being objected to for having allowable subject matter. In addition, the 101 and 112 rejections have also been withdrawn.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

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Alexandria, VA 22313-1450

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Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 8:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Sai-Ming Chan/

Examiner, Art Unit 2616

August 16, 2009

/Kevin C. Harper/

Primary Examiner, Art Unit 2416